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EXAMINER

NGUYEN, SANG H

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 01/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/076,363

Applicant(s)

HANSEN ET AL.

Examiner

Sang H Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 15-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 11-14 is/are rejected.
- 7) ☒ Claim(s) 7-10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-943) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8/03; 5/02 6) ☐ Other:

## DETAILED ACTION

### *Response to Amendment*

Applicant's election of Group I (1-14) without traverse is acknowledged.

**Applicant is required to cancel the none-elected claims 15-47.**

### *Drawings*

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the **"a plurality of spatially distinct, optically detectable, and phenotypic characteristics"** in claims 1-2 and 11-12; and the **"a marker pattern"** in claims 2 and 12 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2 and 11-12 are rejected under 35 U.S.C. 112, second paragraph; as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-2 and 11-12; the term "a population of multicellular organisms comprising a plurality of spatially distinct, optically detectable, and phenotypic characteristics" in claims 1 and 11, and the term "the spatially distinct, optically detectable, and phenotypic characteristics comprises a marker pattern comprising a plurality of spatially consistent first features spaced apart along a length of each organism and at least one second feature modifiable or inducible when the population is subjected to a test treatment" in claims 2 and 12 is not clear. What does applicant mean "a plurality of spatially distinct, optically detectable, and phenotypic characteristic"? and what does applicant mean "the spatially distinct, optically detectable, and phenotypic characteristics comprises a marker pattern comprising a plurality of spatially consistent first features spaced apart along a length of each organism and at least one second feature modifiable or inducible when the population is subjected to a test treatment"?

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims -3 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Ebersole et al (5,578,460).

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Regarding claims 1 and 11; Ebersole et al discloses the system for sorting multicellular organisms comprising:

- a population of multicellular organisms considered to be microorganism population from a mixture which contains more than one microorganism population (abstract) having a plurality of spatially distinct, optical detectable, and phenotypic characteristics (col.12 lines 1-50, and col.20 lines 20-32, and see examples 1-9); and
- an instrument (figures 1 and 4) for detecting the location of the spatially distinct, optical detectable, and phenotypic characteristics of the population of multicellular organisms (abstract) for orienting the multicellular organism along its longitudinal axis (figure 3). See figures 1-10.

Regarding claims 2 and 12-14; Ebersole et al discloses a marker pattern comprises plurality of spatially consistent first features (12 of figure 4) spaced apart along a length of each organism ( figure 4) and at least one second feature modifiable (22 of figure 4) when the population is subject to a test treatment (figure 4).

Regarding claim 3; Ebersole et al discloses the instrument is a flow cytometer considered to be capillary cell (3 of figure 3) for processing elongate multicellular organisms.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebersole et al (5,578,460) in view of Muller et al (U.S. Patent No. 5,804,384).

Regarding claims 4; Ebersole et al discloses the claimed invention except for the instrument for measuring a gating signal of population of multicellular organisms over background signals. However, Muller et al teaches that it is known in the art to provide the instrument for measuring a gating signal of population of multicellular organisms over background signals (col.13 lines 15-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system for sorting multicellular organisms of Ebersole et al with measuring a gating signal of population of multicellular organisms over background signals as taught by for the purpose of reducing background levels of samples.

Regarding claims 5-6; Ebersole et al discloses the gating signal comprises a light attenuated or light scattered (col.22 lines 46-49) in forward direction.

#### ***Allowable Subject Matter***

Claims 7-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art cited on the

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attached form PTO-982 is the most relevant prior art known. However, Applicant's claimed invention distinguishes over the prior art for the following reasons. The claims are allowable over the prior art of record because none of the references either alone or in combination, discloses or render obvious, a system and method for sorting multicellular organisms comprising all the specific elements with the specific combination including of first optical detector for detecting light over a solid angle of at least 20 degrees and over a collection angle of approximately 0.0 to 0.6 degrees in the horizontal axis and approximately 17 degrees in the vertical axis, for detecting passage of the organisms through the optical beams set forth claim 7.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hansen (6,400,453) discloses instrument for selecting and depositing multicellular organisms; Beattie (6,156,502) discloses arbitrary sequence oligonucleotide fingerprinting; Goix (5,798,222) discloses apparatus for monitoring substances in organisms; Lipsky et al (5,668,112) discloses hydrophobic peptide Estes and amides.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Examiner Sang Nguyen whose telephone number (703) 308-6426. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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Supervisor, Mr. Frank Font, can be reached on (703) 308-4881. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722 or 7724.

Nguyen/ sn

SN

January 08, 2004



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